III.B.2.N.d.17. DASIPHORA FRUTICOSA TEMPORARILY FLOODED SHRUBLAND ALLIANCE
Shrubby-cinquefoil Temporarily Flooded Shrubland Alliance

ALLIANCE CONCEPT

Summary: This shrubland alliance is highly variable, occupying various landforms in the foothills, montane, and subalpine regions in the Rocky Mountain region. Sites include glacial depressions, terraces along meandering streams, slopes near springs and seeps, steep scree slopes, or broad mountain meadows. Typically, stands occur on broad, gently sloping valley bottoms and floodplains or along the drier edges of isolated wetlands and fens. Surface water is present for brief periods during the growing season, but the water table usually lies well below the soil surface. The soils are typically sandy loams over sand and gravel layers. Peat accumulation is common in stands located on fens. Soil texture can be fine-textured with occasional mottling and gleying. This alliance is dominated by *Dasiphora fruticosa ssp. floribunda (= Pentaphylloides floribunda)*. Associates include *Artemisia cana* and *Deschampsia caespitosa* and *Trifolium longipes* on wetter sites. Other graminoids present in the wetter sites may include *Poa secunda, Festuca rubra, Carex aquatilis, Carex buxbaumii, Carex microptera, Carex pachystachya, Juncus balticus*, and *Muhlenbergia filiformis*. The drier sites typically are composed of a dense graminoid layer that includes *Festuca idahoensis, Festuca campestris, Schizachyrium scoparium*, and *Andropogon gerardii*. Diagnostic of this alliance is the dominance of *Dasiphora fruticosa ssp. floribunda* in a shrub layer with over 25% cover.

Environment: Plant associations within this alliance are highly variable, occupying various landforms in the foothills, montane, and subalpine regions. They range in elevation from 860 m in Montana to 3000 m in Colorado. These communities can occupy sites adjacent to glacial depressions, terraces along meandering streams, slopes near springs and seeps, steep scree slopes, or broad mountain meadows. Typically, stands occur on broad, gently sloping valley bottoms and floodplains or along the drier edges of isolated wetlands and fens. Surface water is present for brief periods during the growing season, but the water table usually lies well below the soil surface.

Parent materials for sites supporting stands of this alliance are either alluvial-glacial or organic. The soils are typically sandy loams over sand and gravel layers. Peat accumulation is common in stands located on fens. Soil texture can be fine-textured with occasional mottling and gleying. *Salix wolfii, Salix boothii*, or *Betula nana (= Betula glandulosa)* communities can be in the adjacent riparian areas.

Vegetation: Plant associations within this alliance are classified as temporarily flooded, cold-deciduous shrublands. *Dasiphora fruticosa ssp. floribunda (= Pentaphylloides floribunda)* dominates the overstory with a range of 10-60% cover in all stands. *Artemisia cana* and *Deschampsia caespitosa* typically occur with *Dasiphora fruticosa ssp. floribunda* in wetter sites. Other graminoids present in the wetter sites can include *Poa secunda, Festuca rubra, Carex buxbaumii, Carex microptera, Carex pachystachya, Muhlenbergia filiformis*, and *Juncus balticus*. Colorado stands in excellent condition (i.e., not grazing-induced) have high cover of *Carex aquatilis* and *Trifolium longipes*.

The drier sites typically are composed of a dense graminoid layer, up to 75% cover, that includes *Festuca idahoensis, Festuca campestris, Schizachyrium scoparium*, and *Andropogon gerardii*. *Dasiphora fruticosa ssp. floribunda* is a common understory shrub for associations dominated by the following montane trees *Pinus pungens* or *Pinus flexilis*. Riparian stands that include *Dasiphora fruticosa ssp. floribunda* as an understory can include *Betula occidentalis* or *Betula pumila*. In the Pacific Northwest, common overstory species can include *Larix laricina, Acer rubrum*, or *Myrica gale*.

Dynamics: *Dasiphora fruticosa ssp. floribunda* is an opportunistic species and as such occurs on a variety of habitats. Many of the communities dominated by this species appear to be controlled by disturbance. Komarkova (1986) reports stands on subalpine scree slopes that have relatively rapidly moving fine materials or snow.

Heavily grazed sites may support *Dasiphora*-dominated communities as well (Komarkova 1986, Padgett et. al. 1989). *Dasiphora fruticosa ssp. floribunda / Deschampsia caespitosa* Shrubland (CEGL001107) in this alliance is a mid-seral stage of secondary succession as a result of heavy grazing. With improper grazing, *Dasiphora fruticosa ssp. floribunda* will increase in abundance because it is unpalatable to livestock. Other species that increase with grazing in this association are *Poa pratensis, Juncus balticus*, and *Taraxacum officinale* (Padgett et al. 1989). Extended grazing may cause this plant association to convert to a *Dasiphora fruticosa ssp. floribunda / Poa pratensis* plant association.

Similar Alliances:
- DASIPHORA FRUTICOSA SSP. FLORIBUNDA SHRUB HERBACEOUS ALLIANCE (A.1534)

Similar Alliance Comments: The *Dasiphora fruticosa ssp. floribunda* Shrub Herbaceous Alliance (A.1534) occurs at lower elevations and on drier sites than this alliance.

SYNONYMY:
- *Pentaphylloides floribunda* Series (Johnston 1987)

ALLIANCE DISTRIBUTION

Range: This alliance has been described from scattered locations throughout the Rocky Mountains, from Montana west into Oregon, and south into Nevada, Colorado and New Mexico. *Dasiphora fruticosa ssp. floribunda* is widespread throughout North America. It occurs from Alaska east to Newfoundland, Canada, south to California, New Mexico, Iowa, and New Jersey (Welsh et al. 1987). This alliance could potentially occur in the neighboring states of Washington and the higher elevations of Arizona.

Nations: CA? US
States/Provinces: CO ID MT NM NV OR UT WY

ALLIANCE SOURCES

Authors: D. CULVER, WCS **Identifier:** A.958
REFERENCES: Baker 1980a, Baker 1983a, Crowe and Clausnitzer 1997, Hansen et al. 1991, Hansen et al. 1995, Johnston 1987, Jones 1992b, Kettler and McMullen 1996, Kittel et al. 1999, Komarkova 1986, Lee and Jonkel 1980, Loope 1969, Mutz and Graham 1982, Padgett et al. 1988b, Padgett et al. 1989, Sanderson and March 1996, Welsh et al. 1987, Youngblood et al. 1985a, Youngblood et al. 1985b

FLORISSANT FOSSIL BEDS NATIONAL MONUMENT STAND DESCRIPTION

ENVIRONMENTAL DESCRIPTION

USFWS Wetland System: PALUSTRINE

Florissant Fossil Beds NM Environment: This shrubland is found along the margins of emergent wetlands growing from saturated soil and other moist soil sites, and *Dasiphora fruticosa* is an understory shrub in mesic forest types. The sites sampled are of low to moderate gradient (from 2–7% slopes), are considered somewhat poorly drained to moderately well-drained, and occur on any aspect if the moisture regime is adequate. These stands probably increased to their present level of density and abundance under past heavy grazing pressure.

VEGETATION DESCRIPTION

Florissant Fossil Beds NM Vegetation: *Dasiphora fruticosa* is the common shrub of this type, growing along upper wetland margins and in moist drainages, predominantly. This is a zone of mixing or an ecotone between wetland and upland plant associations, therefore *Dasiphora fruticosa* may be associated with obligate wetland species such as *Salix monticola, Carex aquatilis, Carex utriculata*, or *Juncus balticus*, or drier species such as *Bromus porteri* or *Pascopyrum smithii* and the exotics *Poa pratensis, Bromus inermis*, and *Linaria vulgaris*. *Dasiphora fruticosa* is a rounded shrub, less than 1 m in height, and typically provides from 40–65% foliar cover in a stand. *Dasiphora fruticosa* is also a minor component of other mesic sites including willow-dominated wetlands and shaded sites, particularly as understory to *Populus tremuloides* and *Picea pungens*. The associated graminoids are typical of moist to mesic sites, e.g., *Juncus balticus, Deschampsia caespitosa, Poa pratensis, Pascopyrum smithii*, and *Carex utriculata*, and typically contribute from 40–50% foliar cover. Forbs are diverse in this type, but rarely provide more than 10% foliar cover and usually provide less than 5%. The more common forbs present include *Achillea millefolium, Cirsium tioganum*, and *Iris missouriensis*. Ground cover varies from 80–100% litter for most sites, to as little as 25% litter in a gravel drainage. Small gravel provided ground cover up to 60% on a site where alluvium was exposed by flows and aggradation in an intermittent drainage.

This type has a characteristic signature on true color aerial photography, a dark green color and pebbly texture. It is more pronounced on CIR photography with an associated maroon color and pebbly texture.

MOST ABUNDANT SPECIES

Florissant Fossil Beds NM

Stratum	Species
Shrub	*Dasiphora fruticosa*
Graminoid	*Juncus balticus, Poa pratensis*
Forb	*Iris missouriensis, Achillea millefolium, Cirsium tioganum*

CHARACTERISTIC SPECIES

Florissant Fossil Beds NM

Stratum	Species
Shrub	*Dasiphora fruticosa*

Graminoid	*Juncus balticus*
Forb	*Iris missouriensis, Achillea millefolium, Cirsium tioganum*

OTHER NOTEWORTHY SPECIES

Florissant Fossil Beds NM

Stratum	**Species**
Forb	*Linaria vulgaris*

ELEMENT DISTRIBUTION

Florissant Fossil Beds NM Range: *Dasiphora fruticosa* Shrubland is limited to drainage bottoms, moist swale bottoms, margins of livestock watering ponds, quaking aspen woodland understory, and the perimeter of emergent wetland types. The type is located throughout the monument at low to mid-elevations in moist-shaded to saturated conditions.

ELEMENT SOURCES

Florissant Fossil Beds NM Inventory Notes: Plots 14, 32, 39